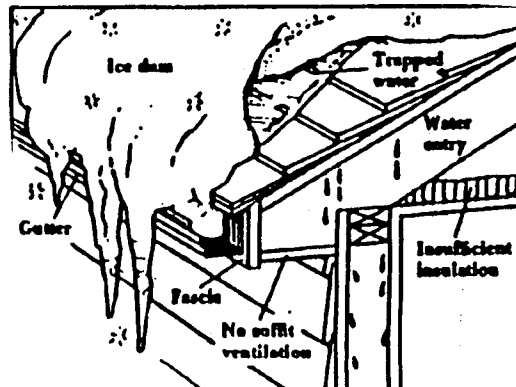


---ICE DAMS--- CAUSES & CURES

The information and suggestions contained in this Guide have been reprinted from sources believed to be reliable. However, the Town accepts no legal responsibility for the correctness or completeness of this material or its application to specific factual situations. This pamphlet has been designed to provide you with a general overlay of information. As always this office strongly suggests that you consider working with professional roofers - either conventional or rubber roofing specialists - who are familiar with a multitude of "unique" problems that can occur.

It happens every few years. After a number of several mild, relatively snowless winters, the Northeast has an old-fashioned winter, with excessive amounts of snow cover and bitter cold, often interspersed with thaws, rain and sleet. A common result of such a winter is ice damming on roofs, causing water to back up and damage walls and ceilings.

Many people, believing that the problem is caused by gutters along the eaves, will remove them, only to find that the ice damming continues. They may also have created a water problem in the basement where no problem existed before. Many believe that having wide overhangs will prevent ice dams. Actually, in some situations, the wider overhangs add to the problem, not the solution.

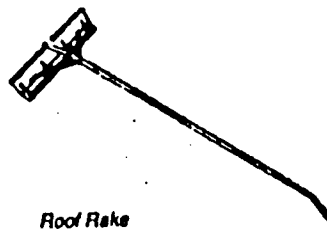


Even installing heat tape at the roof edge can make the condition worse instead of better if it is not done properly.

Ice dams occur after a heavy snowfall, followed by several days or even weeks of very cold weather. Because of the escape of heat from the building interior through the attic, the snow on the roof starts to melt and trickle down to the eave, where a crust is formed, holding the snow in place and keeping the wind from blowing it off the roof. This process continues until a dam of ice is built up that exerts pressure at the edge of the roof and the lower tier of shingles. As this ice expands and backs up closer to the warm roofing, it melts again and finds its way under the roof shingles and underlayment and into the building.

After the storms pass, a building that has had ice dams may show evidence of water-damaged walls and ceilings on the upper floor. Mold and mildew may begin to build up on the walls, indicating wet insulation. In the attic, water-stained roof sheathing near the eaves and wet or water-marked insulation can confirm the existence of ice dams. Also, shingles at the roof eaves may be curled, chipped or broken, or surface granules may have worn away.

WHAT CAN BE DONE? Remove as much snow as possible without ruining the shingles. A roof rake that will remove snow from the edge of the roof prevents ice build-up if used on a regular basis.



Some basic preventive gutter cleaning and inspecting will prevent costly roof and woodwork damage to your building.

Roof repairs must be made as soon as possible after discovery of water leaking into the building, but if ice dams have formed, repairing the roof will not eliminate the cause. Ice water enters the roof it can cause the plywood sheathing to delaminate, soak the insulation, damage walls and ceilings and make the paint peel.

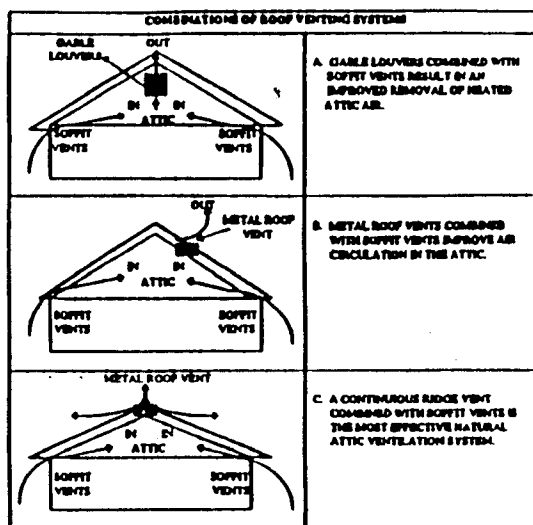
Instead of removing gutters, installing heat tape, and removing shingles, **consider the cause before considering the cure.**

Proper insulation---which is to say more insulation than most contractors think necessary--will help to keep the roof cold, but the real secret is **ventilation**. The roof must be as cold on its underside as the outdoor temperature.

Older buildings, with open attics, had the attic floor filled with insulating material. This kept the lower floors warm and the attic precisely as cold as the outdoors. Louvered openings in the gable ends or other devices kept a flow of frigid air moving through the attic. Buildings like this won't have ice dams build up on their roofs.

To avoid ice dams, anything that impedes the flow of cold air must be removed.

Today, attics are being used for storage, or even additional office or residential space. Walls and ceilings have been added and insulation has been installed between the rafters. Although a lot more heat is retained in the building, some goes straight up to the roof. When it snows, the outside temperature is below freezing and the roof over the building is warmer than the outside air, creating the ideal situation for ice dams.



Preventing ice damage can be as easy as improving attic insulation and ventilation. A cold attic does not melt snow as quickly as a warm one, and reduces melt water.

Several features can be incorporated into roofs to minimize ice dams. The most reliable method is to **ventilate between the underside of the roof and its insulation without door air.**

Try to get the attic as cold as possible. If the attic is partially heated, provide soffit vents and a ridge vent. Install polystyrene tunnels above the insulation just under the roof to carry air from the soffits to the ridge vent.

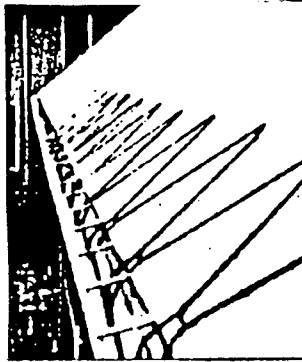
Insulate the attic floor, or add insulation if it is already installed. Make sure there is no insulation in the overhang that could block soffit vents and cause other problems.

Insure that soffits are vented and that vents are not blocked at the gable ends. If these vents are inadequate, ice dams and leaks are almost certain.

A cure for leaks from ice dams, though not for the ice dams themselves, is a strip of rubberized material six feet wide laid along the eave edge of the roof, under new shingles. This should be done when a new roof is installed, but can be done anytime.

Remember: If you can keep cold outdoor air flowing all along the underside of your roof, you'll never have cold outdoor water flowing through your interior ceiling. If a contractor is repairing damage from an ice dam, be sure he understands that it takes not just insulation - but also ventilation - to cure ice dams in the Northeast.

Heat tape, or heat cables work for some roofs and not for others. They are installed in a zig-zag fashion along the edge of the roof, going up at least two feet from the edge. They are turned on when snow occurs and turned off when the snow goes away. Read the manufacturers' directions for proper and safe use.



If the roof is slate, the only cure may be to install metal flashing along the bottom 3 feet or so of the roof, right along the edge, either on top of the slate shingles, or directly on the roof sheathing, after several rows of shingles have been removed. The metal will help the snow slide off before it has built up on the roof.

What if the roof is flat? A leak through a flat roof may not be due to an ice dam but rather from snow sitting on the roof for a period of time. Even a good flat roof, designed to shed water during a rainstorm, may leak when snow and melting ice is on it for several days or weeks. The cure here is a new roof, perhaps a rubber one, which is now the state of the art for flat roofs.

We'd like to take this opportunity to thank the Massachusetts Property Insurance Underwriting Association and Rhode Island Joint Reinsurance Association for assembling this information and presenting it to the public. It is a valuable, preventive tool.